Math
Geometry

PLD	Standard	Minimally Proficient	Partially Proficient	Proficient	Highly Proficient
		The Minimally Proficient student	The Partially Proficient student	The Proficient student	The Highly Proficient student
Congruence					
Detailed	G-CO.A [1]	Identifies an angle, circle, perpendicular line, parallel line, and line segment using proper notation.	Informally defines an angle, circle, perpendicular line, parallel line, and line segment using examples and non-examples.	Can explain definitions of an angle, circle, perpendicular line, parallel line, and line segment based on the notions of point, line, distance along a line, and distance around a circular arc.	Identifies real-life examples of an angle, circle, perpendicular line, parallel line, and line segment using precise definitions.
Detailed	G-CO.A [2 and 4]	Describes reflections, rotations, and translations. Identifies rotations, reflections, and translations given an image and its transformation.	Describes dilations. Informally describes rotations, reflections, and translations using examples and non-examples.	Compares transformations in the plane and understands them as functions that take points in the plane as inputs and give other points as outputs. Develops definitions of rotations, reflections, and translations using the terms angles, circles, perpendicular lines, parallel lines, and line segments.	Represents functions to describe transformations using a variety of media. Justifies statements about rotations, reflections, and translations on the coordinate plane.
Detailed	G-CO.A [3]	Distinguishes between rotations and reflections given a rectangle,	Identifies lines and points of symmetry given a rectangle,	Describes the rotations and reflections that carry a given rectangle,	Identifies a rectangle, parallelogram, trapezoid, or regular

		parallelogram, trapezoid, or regular polygon and its transformation.	parallelogram, trapezoid, or regular polygon and its reflection or rotation.	parallelogram, trapezoid, or regular polygon onto itself.	polygon that satisfies a description of rotational symmetry or lines of symmetry.
Detailed	G-CO.A [5]	Performs rotations, reflections, and translations on a given figure.	Identifies a sequence of transformations that will carry a given figure onto another.	Performs rotations, reflections, and translations using a variety of methods and specifies the sequence of transformations that will carry a given figure onto another.	Explains how the order of a sequence of transformations is performed may result in different outcomes.
Detailed	G-CO.B [6]	Explains transformations of a given figure based on descriptions of rigid motion.	Predicts the effect of a transformation of a given figure based on descriptions of rigid motion.	Creates congruent figures using transformations of rigid motion.	Justifies the congruence of two complex figures using properties of rigid motion.
Detailed	G-CO.B [7]	Identifies corresponding pairs of angles or corresponding pairs of sides of two triangles that are congruent.	Identifies corresponding pairs of angles and corresponding pairs of sides of two triangles that are congruent.	Shows that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent (CPCTC) using the definition of congruence in terms of rigid motions.	Justifies that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent in a context.
Detailed	G-CO.B [8]	Identifies corresponding parts of two congruent triangles.	Identifies the minimum conditions necessary for triangle congruence (ASA, SAS, SSS).	Demonstrates how the criteria for triangle congruence (ASA, SAS, SSS) follow from the definition of congruence	Understands and explains why SSA and AAA do not provide enough evidence for triangle congruence.

				in terms of rigid motions.	
Detailed	G-CO.C [9]	Describes examples of theorems about lines and angles.	Determines the validity of statements within a given proof of a theorem about lines and angles.	Proves theorems about lines and angles.	Applies theorems about lines and angles to a real-life context.
Detailed	G-CO.C [10]	Describes examples of theorems about triangles.	Determines the validity of statements within a given proof of a theorem about triangles.	Proves theorems about triangles. (Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.)	Applies theorems about triangles to a real-life context.
Detailed	G-CO.C [11]	Defines theorems about parallelograms.	Determines the validity of statements within a given proof of a theorem about parallelograms.	Proves theorems about parallelograms.	Applies theorems about parallelograms to a real-life context.
Detailed	G-CO.D [12 to 13]	Copies a line segment and an angle. Constructs congruent segments and perpendicular lines.	Bisects a line segment and an angle. Constructs an equilateral triangle, a square, and a regular hexagon.	Constructs perpendicular lines, a perpendicular bisector of a line segment, and a line parallel to a given line through a point not on the line. Constructs an equilateral triangle, a	Creates a polygon given certain attributes using geometric constructions. Explores the construction of other regular polygons inscribed in a circle.

				square, and a regular hexagon inscribed in a circle.	

Similarity, Right Triangles and Trigonometry					
Detailed	G-SRT.A [1a to 1b]	Identifies dilations.	Identifies the scale factors of dilations.	Verifies the properties of dilations given by a center and a scale factor, by understanding that a dilation creates parallel lines and line segments in ratios of the scale factor.	Locates the center of dilation and scale factor, given a pair of similar figures on a coordinate plane.
Detailed	G-SRT.A [2]	Identifies corresponding parts of two similar figures.	Determines if two given figures are similar.	Explains that two given figures are similar in terms of similarity transformations.	Proves or disproves that two given figures are similar, using transformations and the definitions of similarity.
Detailed	G-SRT.A [3]	Identifies similarity transformations.	Identifies triangle similarity by the use of the AA criterion.	Establishes the AA criterion for two triangles to be similar by using the properties of similarity transformations.	Proves that two triangles are similar if two angles of one triangle are congruent to two angles of the other triangle, using the properties of similarity transformations.
Detailed	G-SRT.B [4]	Defines theorems about triangles.	Determines the validity of statements within a given proof of a theorem about triangles.	Proves theorems about triangles. (Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.)	Applies theorems about triangles to a real-life context.

Detailed	G-SRT.B [5]	Finds measures of sides and angles of congruent and similar triangles.	Solves problems involving triangles, using congruence and similarity criteria.	Solves problems and proves relationships in geometric figures by using congruence and similarity criteria for triangles. Includes problems from context.	Proves conjectures about congruence or similarity in geometric figures, using congruence and similarity criteria for triangles. Includes problems from context.
Detailed	G-SRT.C [6]	Understands that, in similar triangles, corresponding angles are congruent and ratios of corresponding sides are equal. Understands that the acute angles of a right triangle are complementary.	Defines sine, cosine, and tangent as the ratio of sides of a right triangle. Identifies the relationship between the sine and cosine of the acute angles of a right triangle.	Understands that the ratio of two sides in one triangle is equal to the ratio of the corresponding two sides of all other similar triangles, leading to definitions of trigonometric ratios for acute angles. Explains the relationship between the sine and cosine of complementary angles.	Determines the similarity of right triangles by comparing the trigonometric ratios of the corresponding sides. Solves for missing angles of right triangles using sine and cosine.
Detailed	G.SRT.C [7]	Understands that the acute angles of a right triangle are complementary.	Identifies the relationship between the sine and cosine of the acute angles of a right triangle.	Explains the relationship between the sine and cosine of complementary angles.	Solves for missing side lengths of right triangles when given a fraction that is equivalent to the sine or cosine of one of the angles.
Detailed	G-SRT.C [8]	Solves right triangles using the Pythagorean Theorem.	Applies the Pythagorean Theorem in real-life and mathematical contexts.	Solves right triangles using trigonometric ratios and the Pythagorean Theorem in applied/contextual problems.	Models solutions to situations, using trigonometric ratios and the Pythagorean Theorem, by constructing equations

					that can be used to solve the problem. Including problems from context.

Circles					
Detailed	G-C.A [1]	Knows that the definition of a circle as points equidistant to a given point.	Recognizes that all circles are similar.	Proves that all circles are similar.	Solves applied math problems, using the fact that all circles are similar.
Detailed	G-C.A [2]	Identifies inscribed angles, radii, and chords in circles.	Recognizes relationships among inscribed angles, radii, and chords in circles.	Describes relationships among inscribed angles, radii, and chords in circles.	Solves problems using relationships among inscribed angles, radii, and chords in circles.
Detailed	G-C.A [3]	Identifies inscribed and circumscribed circles of a polygon.	Constructs the inscribed and circumscribed circles of a triangle.	Proves properties of angles for a quadrilateral inscribed in a circle.	Proves the unique relationships between the angles of a triangle or quadrilateral inscribed in a circle.
Detailed	G-C.B [5]	Defines a sector area of a circle as a proportion of the entire circle.	Develops the definition of radians as a unit of measure by relating to arc length.	Derives the formula for the area of a sector, and derives, using similarity, the fact that the length of the arc intercepted by an angle is proportional to the radius.	Proves that the length of the arc intercepted by an angle is proportional to the radius, with the radian measure of the angle being the constant of proportionality.

Expressing Geometric Properties with Equations					
Detailed	G-GPE.A [1]	Identifies the center and radius of a circle, given an equation written in (x - h)^2 + (y - k)^2 = r^2 form.	Creates the equation for a circle, when given the center and radius.	Completes the square to find the center and radius of a circle given by its equation.	Determines the equation of a circle, given points of tangency.
Detailed	G-GPE.B [4]	Solves problems algebraically, using geometric theorems involving a circle on the coordinate plane. Locates segments on a coordinate plane that are parallel or perpendicular by calculating slope.	Proves simple geometric theorems using coordinates, when given a visual representation on the coordinate plane.	Proves simple geometric theorems algebraically using coordinates, such as proving a point lies on a given circle.	Constructs visual representations on the coordinate plane that meet given conditions for coordinates. Justifies statements about geometric figures using coordinates.
Detailed	G-GPE.B [5]	Can explain why the slopes of parallel lines are equal and the slopes of perpendicular lines are negative reciprocals or one that is 0 and the other that is undefined.	Creates the equation of a line that passes through a specific point given its slope.	Creates the equation of a line parallel or perpendicular to a given line that passes through a given point.	Creates the equation of a line parallel or perpendicular to a given line that passes through a given point in a context.
Detailed	G-GPE.B [6]	Finds the point on a line segment that partitions the segment in a given ratio, given a visual representation of the line segment.	Finds the point on a line segment that partitions the segment in a given ratio, given coordinates for the line segment.	Finds the point on a directed line segment (between two given points) that partitions the segment in a given ratio.	Constructs a line segment that is partitioned in a given ratio.
Detailed	G-GPE.B [7]	Calculates the perimeter	Calculates areas of a	Calculates areas of any	Calculates perimeters of

		of a polygon.	rectangle and right triangle given their coordinates.	triangle given its coordinates.	polygons and areas of triangles and rectangles using their coordinates from a contextual problem.

Geometric Measurement and Dimension					
Detailed	G-GMD.A [1]	Informally describes the formulas for the circumference and area of a circle.	Informally describes the formulas for the volume of a cylinder, pyramid, and cone by the use of dissection arguments.	Explains the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.	Justifies the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.
Detailed	G-GMD.A [3]	Substitutes given dimensions into the formulas for the volume of cylinders, pyramids, cones, and spheres.	Computes the volume of cylinders, pyramids, cones, and spheres, given a graphic.	Solves problems using the volume formulas for cylinders, pyramids, cones, and spheres.	Finds the volume of cylinders, pyramids, cones, and spheres in a real-life context.
Detailed	G-GMD.B [4]	Identifies the shapes of two-dimensional cross-sections formed by a vertical or horizontal plane.	Identifies a three-dimensional object generated by rotations of a simple two-dimensional object about a line of symmetry of the object.	Identifies the shapes of two-dimensional cross-sections of three-dimensional objects. Identifies a three-dimensional object generated by rotations of two-dimensional objects.	Sketches the shape of a particular two-dimensional cross-section of a three-dimensional shape. Sketches the three-dimensional object that results from the rotation of a given two-dimensional object.

Modeling with Geometry					
Detailed	G-MG.A [1]	Identifies geometric shapes that model a real-world object.	Uses a geometric shape modeled in a simple real-world object to determine the appropriate measures.	Uses geometric shapes, measures, and properties to model and describe objects.	Uses composite geometric shapes, measures, and properties to model and describe objects.
Detailed	G-MG.A [2]	Calculates density based on area, when a formula is given.	Calculates density based on volume (when a formula is given), and identifies appropriate unit rates.	Uses properties of density based on area and volume to model a situation in context.	Compares and contrasts density rates in a modeling context.
Detailed	G-MG.A [3]	Identifies relevant geometric models for use in solving a design problem.	Compares quantitatively different proposed solutions to a design problem, using geometric properties of the solution.	Designs a structure to meet constraints and optimization requirements.	Designs a composite structure to meet constraints and optimization requirements.